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# F220-B6RS 24 VDC Four-wire Detector Base with Sounder



The F220-B6RS 24 VDC Four-wire Detector Base with Sounder meets the requirements of UL464 for a notification device and works with the F220 Series Photoelectric Smoke and Heat Detectors. Power the sounder from the control panel's NAC circuit or from auxiliary power.

## Functions

### Sounder Configuration

The output (sound pattern and synchronization) of the sounders on a detection loop can be configured in four different ways. Refer to the *F220 Series Detectors Installation Instructions* (P/N: 4998138694) for instructions on wiring and setting the F220-B6RS detector base for these configurations:

1. **NAC Follower (Direct Wire) Configuration:** In this configuration, the sounders on the loop follow the signal on the NAC terminals as programmed at the control panel. Refer to the control panel's installation manual for NAC configuration instructions. This configuration requires an extra pair of supervised wires for the sounder circuit.

- ▶ **Easy installation**
- ▶ **Interchangeable detector heads**
- ▶ **UL listed when used with F220 Series Detector Heads**
- ▶ **UL464 approved sounder driven by the detector head or the NAC circuit**

2. **Reverse Polarity Configuration:** In this configuration (not suitable for synchronized protocols; such as, Cooper Wheelock, Gentex, or System Sensor), the sounders in a loop activate due to reversed polarity on the power line. The output pattern is not controlled by the base in this operating mode; it follows the reversing power signal on the detector head's terminals as programmed at the control panel.
3. **Local Annunciation Configuration:** In this configuration, each sounder is individually set for one of the following patterns: Temporal (Code 3), March Time, or Continuous Tone. Use a D275 Power Supervision Module in this configuration to supervise the detector loop.
4. **Interconnection Configuration:** In this configuration, up to five detectors supervise the end of the detector loop when interconnected by a common wire. All sounders within the group activate together. Set all units for the same output pattern (Temporal [Code 3], March Time, or Continuous Tone). All interconnected detectors are synchronized with and sound the pattern of the originating detector. The maximum wire length for connecting up to five units is:

Wire Size	Wire Length
18 AWG (1.2 mm)	300 ft (91 m)
16 AWG (1.5 mm)	450 ft (137 m)
14 AWG (1.8 mm)	750 ft (229 m)

**Note** To ensure interconnected units can signal an alarm, the line load after the last detector on

the interconnected detector loop must not exceed 10 mA.

## Certifications and Approvals

Region	Certification
USA	UL ULSZ: Audible Signal Appliances (UL464), UROX: Smoke - Automatic Fire Detectors (UL268), UROX7: Smoke - Automatic Fire Detectors Certified for Canada (ULC-S529)
	FM
	CSFM 1700-1615:105
	NYC-MEA (117-05-E)

## Installation/Configuration Notes

### Compatibility Information

**Four-wire:** Compatible with all UL Listed four-wire control panels. Refer to the control panel's Installation Instructions for proper end-of-line (EOL) resistor selection.

**Detectors:** Compatible with the following F220 Series Detector Heads:

- F220-P Photoelectric Smoke Detector
- F220-PTH Photoelectric Smoke Detector with +135°F (+57°C) Heat Sensor
- F220-PTHC<sup>1</sup> Photoelectric Smoke Detector with +135°F (+57°C) Heat Sensor and Carbon Monoxide Sensor Enhancement<sup>1</sup>
- F220-135 Electronic Rate-of-Rise, Fixed Temperature +135°F (+57°C) Heat Detector
- F220-135F Electronic Fixed Temperature +135°F (+57°C) Heat Detector
- F220-190F Electronic Fixed Temperature +190°F (+88°C) Heat Detector

<sup>1</sup> The F220-PTHC detects carbon monoxide (CO) as a component of a fire. It is not a CO detector and cannot activate an alarm in the presence of CO only.

### Mounting Considerations

Depending on local regulations, surface mount the bases using anchors, mollies, or wing nuts, or mount directly on four-inch square or octagonal electrical boxes or single-gang switch boxes.

**Note** The electrical box must be large enough to accommodate the number and size of conductors specified by the National Electrical Code or any local authorities having jurisdiction (AHJ).

## Wiring Considerations

In a four-wire system, the maximum loop length and number of bases that can be placed on a loop depend on the voltage drop on the power circuit. Use standard voltage drop calculations to ensure that the last detector on the loop has at least 16 V when all sounders and relays are powered.

## Parts Included

Quant.	Component
1	Detector base
1	Literature pack

## Technical Specifications

### Environmental Considerations

Relative Humidity: 0 to 95%, non-condensing; 15% to 95%, non-condensing when used with CO sensor model

Temperature (operating): +32°F to +100°F (0°C to +38°C)

### Mechanical Properties

Color: Off-white

Dimensions (diameter x thickness): 6 in. x 0.9 in. (15.2 cm x 2.3 cm)

Material: Fire-resistant plastic

### Outputs

Relay Type: Normally-open (NO) Form A

Relay Rating: 0.5 A at 120 VDC or 120 VAC

Sounder Output: >85 dB at 10 ft (3 m)

### Power Requirements

Voltage Range: 16.0 VDC to 30 VDC

### Alarm Current

6-wire mode (4-wire base + two sounder power wires)

Relay: The relay draws 15 mA in alarm.

Steady Sounder: 24 VDC: 30 mA  
30 VDC: 35 mA

### 4-wire mode

With Steady Sounder and Relay: 24 VDC: 45 mA  
30 VDC: 50 mA

Standby Current (base only): 30 VDC: 10 mA maximum

**Ordering Information****F220-B6RS 24 VDC Four-wire Detector  
Base with Sounder** **F220-B6RS**

Four-wire detector base with sounder for use with the F220 Series Photoelectric Smoke and Heat Detectors.

**Accessories****D275 Power Supervision Module** **D275**

Line supervision device for four-wire fire detection circuits

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